

# My Science Research Project Journal

**Due September 13th**

**Ideas of things I would like to investigate**

*Think: What topics are you interested in? What topics do you care about? What have you noticed and wondered about your world lately? Generate three ideas about that topic that you are curious about, or if your topic has to do with solving a problem, think about what needs to be done better, faster, or correctly.*

1. Growing dinosaurs again
2. Melt toys
3. Making Animals Talk

**Due September 20th**

**Question I am going to test**

*Narrow down to one favorite idea you would like to explore. Put your idea in the form of a question.*

1. I tested growing dinosaurs before and really liked that. This time, I want to know what types of liquids will make it grow. I thought about testing water, Fanta, and Milk, but my mom said I can't do milk because it will go bad and would be hard to see. We talked about clear liquids instead and picked distilled water, tap water, and Sprite. My question is: **Which clear liquid will make the growing dinosaurs grow the most?**

**Due October 25th**

**Introduction/Research**

*Start researching the history of this problem and what research has already been done on the topic. Include background information about the topics in your experiment. **Do not search the answer to your question, instead, identify 3 keywords that are related to your topic and search background information on them (i.e. fruits, oxygen, chemical reactions).** Write down why you are interested in this question or problem and what you will do. This will be the other part of your "Introduction." Think about all the various outcomes to the question you are asking. Brainstorm ways to test and answer your own question. This will be your research plan.*

What ingredients make grow dinosaur toys grow so big?

- The grow dinosaurs are made of hydrogel. The dinosaur keeps its shape but grows bigger because there are two different hydrogels.

What is the difference between tap water and distilled water?

- The distilled water is cleaned and comes in a plastic bottle, and tap water comes from the sink.
- Distilled water has been cleaned by boiling it and collecting the steam. The pH level is 7.0.
- Tucson tap water comes from the ground and has nitrates and minerals added. The website says the pH level is 7.8 as of May 2025.

What is in Sprite?

- Sprite has: CARBONATED WATER, HIGH FRUCTOSE CORN SYRUP, LESS THAN 2% OF: NATURAL FLAVORS, CITRIC ACID, CARAMEL COLOR, SODIUM CITRATE, SODIUM BENZOATE, AND POTASSIUM SORBATE (TO PROTECT TASTE).

After starting our project, I wondered...

Why are the bubbles making the dinosaur go up? I noticed that the bubbles were air, and it made the dinosaur float from the air bubbles. When it got bigger and heavier, there were no bubbles.

**Due October 25th**

**Resources where I found this information**

*While doing your research, be sure to record all sources that you use. You will need to have a bibliography for your project.*

- <https://stevespangler.com/experiments/giant-growing-creatures/>
- <https://www.tucsonaz.gov/Departments/Water/Water-Quality/Water-Quality-Monitoring/WQ-Dashboard>
- <https://www.coca-cola.com/us/en/brands/sprite/products#accordion-ecc962e3be-item-3d52d39708>
- [https://mypurewater.com/blog/2024/05/22/what-is-the-ph-of-distilled-water/?srsltid=AfmBOoqXLAr8Ide3kwCzSiVHZRI1OGmXmw5wi7D9YQIY\\_Zp5db9BWzeE](https://mypurewater.com/blog/2024/05/22/what-is-the-ph-of-distilled-water/?srsltid=AfmBOoqXLAr8Ide3kwCzSiVHZRI1OGmXmw5wi7D9YQIY_Zp5db9BWzeE)

**Due November 15th**

**My variables**

*Think of all the variables you can control. Choose one that you will change as part of*

your investigations or design trials. Think of all the variables you cannot control, but will discuss at the end that might have affected your results. All good researchers acknowledge this.

**Manipulated Variable (the one thing I am going to change):**

*I am changing the liquid I use. I will use distilled water, Sprite, and tap water.*

**Responding Variable (the thing I am going to measure):**

*I am measuring how much the dinosaurs grow. I will measure from the tail to the nose with a ruler using centimeters. I will measure every day for four days because the box says 72 hours. We want the longer value to see how much they grow for.*

**Controlled Variables (all the things I need to make sure stay the same in my trials):**

*I measured the same amount of liquid, 1 ½ cups, on top of the dinosaur in the container.*

*All containers are the same.*

*I only had 12 spinosaurus (red) dinosaurs, and then I used 3 tyrannosaurus (green) dinosaurs because my mom said I had to have 5 of each.*

**Due November 15th**

**Predictions**

*State what outcome you think you will find. It should be a possible answer to your Question.*

*I think the distilled water will grow the most because when I did it last time it usually worked. It is also the cleaner liquid so it should not stop it from going bigger.*

**Due December 2nd**

**Materials List**

*Make a list of materials you'll need to carry out your investigations or to build prototypes of your design. This should be a very detailed list of every material you need to do your experiment. Be sure to include the amounts or measurements of materials.*

1. 1 2-liter of Sprite
2. 1 gallon of Distilled Water
3. Cold water from the tap
4. 15 grow dinosaurs
5. Ruler

6. Permanent Markers
7. 15 containers
8. An alarm to remind me to check it
9. Computer
10. Paper towels for clean up

### **Due December 2nd**

#### **Procedures**

*Make sure to create a numbered step-by-step procedure. This should be so detailed that someone could copy your experiment exactly. Try to avoid using personal pronouns like "I" or "you."*

1. Gather all materials
2. Prep the area for the experiment
3. Write the liquid on the containers
4. Prepared sections to write the measurements
5. Measure and write down each dinosaur's starting length in centimeters
6. Measured the liquid and poured it on the dinosaurs, then closed the container
7. Put dinosaur containers in their spots
8. Check and measure each container every day for four days
  - a. When I measure, I will need to place the dinosaur container on top of the ruler each time to measure accurately.
  - b. After measuring, I will write it on the top
9. I will work with my mom to put all of the data into the journal and create a chart and graph showing which one had the most growth

### **Due December 6th**

#### **Timeline of Experiment**

*Create a rough outline of when you expect to complete each part of the experiment.*

*Researching and Gathering Materials: 9/10-9/20*

*Start Experiment: 9/21*

*Finish Experiment: 9/24*

*Enter all data and first ideas, conclude: 9/25*

*Finish the experiment during the November breaks*

**Due December 13th**

**Data Table (you can change the number of columns and rows of this if needed)**

Record your measurements and observations here.

## Sprite

**Day 1 observations:** Sprite was added, and the bubbles made the dinosaurs go up. After one hour, there are bubbles everywhere, and the dinosaurs are bubbly.

**Day 2 observations:** The color is coming off- red and going into the Sprite, and there are hardly any bubbles.

**Day 3 observations:** The colors of the liquid is a lot darker and some parts of the dinosaur are not visible.

**Day 4 observations:** The color of the liquid is a dark orange and the teeth are not visible on the dinosaurs

| Dinosaur ID            | Day 1    | Day 2    | Day 3    | Day 4             |
|------------------------|----------|----------|----------|-------------------|
| A                      | 5 ½ cm   | 7 cm     | 8 cm     | 9 cm              |
| B                      | 5 ½ cm   | 7 cm     | 8 cm     | 9 cm              |
| C                      | 5 ½ cm   | 7 cm     | 8 cm     | 8 8/10 = 8 4/5 cm |
| D                      | 5 ½ cm   | 7 cm     | 8 cm     | 9 cm              |
| E (t-rex)              | 5 cm     | 6 cm     | 7 cm     | 8 cm              |
| Average:               | 5 3/5 cm | 6 3/5 cm | 7 3/5 cm | 8 19/25 cm        |
| Average without t-rex: | 5 ½ cm   | 7 cm     | 8 cm     | 8 19/20 cm        |

## Distilled Water

**Day 1 observations:** Distilled water was added, and there are no bubbles, so the dinosaurs stayed down. After one hour, the dinosaurs are a tiny bit bubbly.

**Day 2 observations:** The colors are coming off - yellow, orange, and green and going into the distilled water, and there are hardly any bubbles.

**Day 3 observations:** The dinosaurs are a lot puffier, and the liquid is darker. The eyes of the dinosaur are fading away.

**Day 4 observations:** The liquid is more of yellowish orange and the dinosaurs are puffy except the t-rex.

| Dinosaur ID                   | Day 1            | Day 2         | Day 3             | Day 4              |
|-------------------------------|------------------|---------------|-------------------|--------------------|
| A                             | 5 ½ cm           | 8 cm          | 9 ½ cm            | 10 7/10 cm         |
| B                             | 5 ½ cm           | 7 ½ cm        | 9 ¼ cm            | 10 ½ cm            |
| C                             | 5 ½ cm           | 7 ½ cm        | 9 ¼ cm            | 10 ½ cm            |
| D                             | 5 ½ cm           | 6 ½ cm        | 8 cm              | 10 7/10 cm         |
| E (t-rex)                     | 5 ¼ cm           | 7 ½ cm        | 8 ¾ cm            | 10 cm              |
| <b>Average:</b>               | <b>5 9/10 cm</b> | <b>7 ⅝ cm</b> | <b>8 19/20 cm</b> | <b>10 12/25 cm</b> |
| <b>Average without t-rex:</b> | <b>5 ½ cm</b>    | <b>7 ¾ cm</b> | <b>9 cm</b>       | <b>10 ⅜ cm</b>     |

## Tap Water

**Day 1 observations:** Tap water was added, and there are bubbles when the water comes out, but the dinosaurs stayed down. After one hour, the container is very misty and you can't see the dinosaurs well.

**Day 2 observations:** The colors are coming off - yellow, orange, and green, and going into the tap water, and there is a tiny bit of mist.

**Day 3 observations:** The tap water is no longer misty, the eyes are fading away as well and the dinosaurs are a lot puffier and the liquid is darker.

**Day 4: observations:** The mist is gone, and the dinosaurs have bubbles on their eyes and the liquid is a light orange.

| Dinosaur ID                   | Day 1         | Day 2            | Day 3             | Day 4             |
|-------------------------------|---------------|------------------|-------------------|-------------------|
| A                             | 5 ½ cm        | 7 ¼ cm           | 8 ½ cm            | 9 9/10 cm         |
| B                             | 5 ½ cm        | 7 ½ cm           | 9 cm              | 10 3/10 cm        |
| C                             | 5 ½ cm        | 7 cm             | 8 ¼ cm            | 9 9/10 cm         |
| D                             | 5 ½ cm        | 8 cm             | 9 ½ cm            | 10 7/10 cm        |
| E (t-rex)                     | 5 ½ cm        | 7 ½ cm           | 8 ¼ cm            | 9 ½ cm            |
| <b>Average:</b>               | <b>5 ½ cm</b> | <b>7 9/10 cm</b> | <b>8 17/32 cm</b> | <b>10 3/20 cm</b> |
| <b>Average without t-rex:</b> | <b>5 ½ cm</b> | <b>7 ¾ cm</b>    | <b>8 13/16 cm</b> | <b>10 ¼ cm</b>    |

**\*\* You will need to create a graph for your final slide deck presentation showing your data\*\***

## **Due December 13th**

### **Data Paragraph**

*Explanation of results and observations, any ideas or thoughts you had while doing the experiment. Look for patterns in your data.*

I wanted to find out which clear liquid will make the growing dinosaurs grow the most. We collected the data by measuring each day and found out that some grew puffier than others. The liquid that grew the biggest dinosaur was the tap water over time. We did not include the t-rex's growth in the average because he was smaller overall.

When I looked at my dinosaurs this is what I saw on day one: all dinosaurs were  $5 \frac{1}{2}$  centimeters. There were bubbles on the dinosaurs after an hour on the Sprite and distilled water and it was hard to see the tap water. On day two there were less bubbles and mist and the colors were coming off of all of the dinosaurs. All of the dinosaurs grew bigger. On day three the liquid was darker on all of them, the dinosaurs were bigger, and the dinosaurs all are even bigger. On day four we measured all of them again and noticed all the colors changed again and the dinosaurs are bigger and puffier.

After looking at all of them and measuring the biggest growing dinosaurs was the distilled water. They were an average of  $10 \frac{12}{25}$  when we include all dinosaurs. That is  $4 \frac{29}{50}$  centimeters more than when they started. The next biggest was the tap water. It grew  $4 \frac{13}{20}$  more centimeters. The last was Sprite. It grew  $3 \frac{9}{25}$  more centimeters.

### **Conclusion**

*Restate the question you were testing and give a brief summary of your methods. Write claims about what happened, based on using data as evidence. The claims should answer your initial question or solve your primary problem. Expand upon your claims by providing scientific reasoning and discussing how your predictions were met or not. Discuss the challenges you encountered and limitations, such as variables that could*

have influenced results. Discuss implications. Explain why your research is important. Brainstorm additional questions you have and any other ideas you have for further research.

In this experiment I was testing what type of water or clear liquid would make the dinosaurs grow the biggest. I tested Sprite, distilled water (for the second time), and tap water. We measured the dinosaurs each day using a ruler under the clear container it was in. We used 12 Spinosaurus and 3 T-rex because we needed 5 trials. The liquid made bubbles on the dinosaurs in the beginning when we first put it in. Then the colors started to fade away and they started to get bigger. Each day we would measure and write it down on the container with a sharpie to make sure we did not mix up the projects.

My prediction was right, the distilled water was the biggest again. One thing I thought of is I should have done Stegasaurus instead of t-rex because his shape is closer to Spinosaurus. If I did this again, I would change that to see if it closer in size over the whole time.

#### **Bibliography of all resources used:**

- **Spangler, Steve.** “Growing Creatures – Superabsorbent Polymers.” Steve Spangler, <https://stevespangler.com/experiments/giant-growing-creatures/>. Accessed 17 Oct. 2025.
- **City of Tucson.** *Water Quality Dashboard*. City of Tucson, <https://www.tucsonaz.gov/Departments/Water/Water-Quality/Water-Quality-Monitoring/WQ-Dashboard>. Accessed 17 Oct. 2025.
- **The Coca-Cola Company.** *Sprite — Varieties, Nutrition Facts & Ingredients*. Coca-Cola, <https://www.coca-cola.com/us/en/brands/sprite/products#accordion-ecc962e3be-item-3d52d39708>. Accessed 17 Oct. 2025.
- **Pure Water.** “What Is the pH of Distilled Water?” *My Pure Water*, 22 May 2024, [https://mypurewater.com/blog/2024/05/22/what-is-the-ph-of-distilled-water/?srsltid=AfmBOoqXLAr8Ide3kwCzSiVHZRI1OGmXmw5wi7D9YQIY\\_Zp5db9BWzeF](https://mypurewater.com/blog/2024/05/22/what-is-the-ph-of-distilled-water/?srsltid=AfmBOoqXLAr8Ide3kwCzSiVHZRI1OGmXmw5wi7D9YQIY_Zp5db9BWzeF). Accessed 17 Oct. 2025.